CLAIMS

1. A hair removing device comprising:

a housing incorporating therein a rotary motor; and

an epilator head carrying epilation members for removing hairs from the user's skin, said epilator head being detachably mounted to said housing and including a drive mechanism which is powered by said motor to actuate said epilation members,

said motor having an output rotor shaft fixedly carrying a noncircular joint;

said drive mechanism including a coupler which is detachably connected to said joint to receive the rotary motion of said motor,

said coupler being coaxial with said joint and movable together with said epilator head into and out of engagement with and from said joint,

said coupler being slidable along the axis of said joint while keeping a driving connection therebetween.

2. The device as set forth in claim 1, wherein

sad coupler is in the form of a sleeve defining therein a socket hole into which said joint fits, said coupler being recessed from a bottom end of said epilator head.

3. The device as set forth in claim 1, wherein

said epilator head includes a cylinder having a center axis along which a plurality of said epilation members are arranged,

said drive mechanism including a first linkage leading from said coupler for

shifting said epilation members along said center axis towards and away from one another to pinch the hairs between the adjacent hair epilation member and at the same time for rotating the cylinder about said center axis in order to pluck the hairs pinched between the adjacent hair epilation members,

said drive mechanism further including a second linkage leading from said coupler for rotating said cylinder about said center axis for oscillating the cylinder along said center axis,

said cylinder being arranged to have its center axis lying substantially in a coplanar relation with the axis of said joint.

4. The device as set forth in claim 3, wherein

the coupler of said epilator head is integrally formed with a coaxial pinion which engages with a common gear wheel forming a part of said first and second linkages.

5. The device as set forth in claim 3, wherein

said epilator head includes a base detachable to said housing, and a frame mounting a plurality of gears forming said first and second linkages in addition to said cylinder,

said frame being supported to said base by way of spring means to be movable relative to said base against the bias of said spring means.

6. The device as set forth in claim 5, wherein

said frame is movable relative to said base against the bias of said spring means in a direction along said axis of said joint as well as in a direction along

the center axis of said cylinder.

7. The device as set forth in claim 1, further including
a shaving head which is selectively detachable to said housing in place of said epilator head for cutting the hairs,
said shaving head carrying a cutter and including a shaving drive mechanism which is powered by said motor to move said cutter for cutting the hairs,
said shaving drive mechanism including a shaving coupler which is detachably connected to said joint for receiving the rotary motion of said motor.

8. The device as set forth in claim 7, wherein
the coupler of said shaving head is integrally formed with an eccentric cam which engages with a reciprocator carrying said cutter for translating the rotary motion of the motor into a reciprocating movement of said cutter.

9. The device as set forth in claim 7, wherein
said epilator head includes a cylinder having a center axis along which a plurality of said epilation members are arranged,
said drive mechanism including a first linkage leading from said coupler for shifting said epilation members along said center axis towards and away from one another to pinch the hairs between the adjacent hair epilation member and at the same time for rotating the cylinder about said center axis in order to pluck the hairs pinched between the adjacent hair epilation members, and wherein
said shaving drive mechanism translates the rotary motion of the motor directly

into the reciprocating movement of said cutter such that said cutter can reciprocate at a frequency higher than a rotational speed of said cylinder.